

MUSCATATUCK (NWR) Narrative 1968

NARRATIVE REPORT

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I. GENERAL

A. Weather Conditions

	<u>Precipitation</u>				<u>Temperature</u>		
	<u>Month</u> <u>Total</u>	<u>Depr. from</u> <u>Normal</u>	<u>Greatest</u> <u>Day</u>	<u>Snow</u> <u>Total</u>	<u>Average</u>	<u>Highest</u>	<u>Lowest</u>
January	2.12	-1.87	.70	-	24.2	54	-12
February	.85	-2.05	.50	3.5	26.2	64	-5
March	3.80	- .21	.80	-	40.8	82	8
April	4.92	+1.24	1.59	-	53.1	81	26
May	11.51	+7.51	4.25	-	59.2	85	31
June	4.11	- .11	1.33	-	70.9	94	45
July	5.08	+1.51	2.15	-	74.3	94	48
August	3.67	+ .77	.96	-	73.3	95	40
September	1.99	-1.27	.58	-	65.3	90	39
October	1.17	-1.25	.30	-	53.9	87	23
November	4.18	+ .95	1.22	1.2	44.1	80	19
December	4.07	+1.21	1.31	T	31.2	56	10
Year Total	47.47			4.7	Extremes	95	-12

The weather data above is from the U.S. Department of Commerce, Climatological Data which we receive monthly for the Seymour area.

B. REFUGE IN GENERAL

The year 1968 marked the first full year of refuge operation. The Muscatatuck National Wildlife Refuge was approved by the Migratory Bird Conservation Commission on June 7, 1966. Refuge operation was started on July 1, 1967, with the appointment of a Refuge Manager.

Master Planning is scheduled for completion by the end of 1969. As of December 31, 1968, the refuge was still in the land acquisition stage. Approximately 75 per cent of the necessary ownerships had been acquired representing about 50 per cent or 4,000 acres of the 8,000 acres needed to complete the project. Much of the Refuge Manager's time during 1968 was spent in assisting Realty Personnel in land acquisition, public relations, and in the disposal of surplus buildings. Refuge Development and subsequent typical refuge operation are not anticipated until late 1970 or 1971.

C. REFUGE OPERATIONS AND DEVELOPMENT - 1968

Considering the intermittent ownership pattern of lands under control of the Bureau, and the limited acreage available for refuge management, a rather surprising amount of accomplishment did take place in 1968.

With the use of S&M funds (\$5,000.00) and engineering assistance contributed by the U.S. Soil Conservation Service, four farm-pond type, water retarding structures were constructed by local contractors averaging two acres in size. One of the first ponds completed (2 $\frac{1}{2}$ acres) on July 26, 1968, was partially filled with water in October and hosted over 100 wood ducks. Our 1967 Annual Narrative Report listed only one wood duck recorded on lands under the management of the Bureau. The addition of more lands to the refuge and the construction of the aforementioned two-acre farm ponds along with the construction of approximately eight smaller ponds produced a population increase of at least 200 wood duck, mallard and black duck in October, November and December.

Among the highlights of our limited development in 1968 was the construction of our Wildlife Display Area and Wildlife Trail. These developments won wide public approval and support. The development of our wildlife display and demonstration area was made possible by the employment of Mr. Wagner, Biological Aid, in February, 1968. The area consists of approximately 200 acres in the center of the refuge and surrounding our field headquarters site. The area contains three farm ponds (2 $\frac{1}{2}$ acres) and four smaller ponds (1/10 acre). A shallow six-acre impoundment, known as our Shore-bird Area, is also a part of the Wildlife Demonstration Area.

Other physical features of significance in this area are a Scout Cabin, Wildlife Trail along Storm Creek and various wildlife food plots. The Wildlife Demonstration Area and Trail were utilized by several youth groups during the summer of 1968. These included Boy Scouts, 4-H tours, and FFA. The Wildlife Area has been made especially attractive to these and other groups by the addition of 21 Canada geese from Sherburne National Wildlife Refuge and 50 mallards which are free flyers in and around the demonstration area.

Among the items designed and constructed by our Biological Aid during the reporting period are the following:

1. Duck traps.
2. Goose transport cage and luggage carrier.
3. Wood duck nest boxes.
4. Mallard nesting structure.
5. Martin and bluebird houses.
6. Goose holding pen.
7. Wildlife trail.
8. Air pumping system to keep ponds ice free.
9. Dove banding traps.
10. Heating system for shop building and Scout Cabin.

In addition to the above, our Biological Aid worked with the Bureau land surveyors, SCS engineers, State biologist, and U.S. Game Management Agent. He attained one of the highest scores on the final examination of the law enforcement workshop at Madison, Wisconsin. He also worked with State Conservation Officers and assisted in making arrest of night hunters on the refuge. Maintenance duties of our Biological Aid involved painting of buildings, fence removal, brush clearing, plumbing and electrical repair. Sign erection, pond renovation and maintenance, dove banding, wildlife census, and slide talks were all part of the duties of Mr. Wagner.

The Refuge Manager, in addition to working with Realty Personnel and in the disposal of surplus buildings, spent much time in public relations. This involved writing news releases for the radio and newspapers. Slide talks to civic, garden, and sportsmen's clubs also occupied much of the manager's off-duty hours. Routine office duties such as report and memo writing absorbed any slack time of the manager.

The Refuge Clerk also shared in the responsibility of report and memo writing required by the Regional and Central Office. Her duties involved keeping bills paid, correspondence, answering the phone in the absence of the Refuge Manager, et cetera.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

Census was taken primarily from the Wood Duck Pond. This new pond attracted most of the ducks on the refuge as soon as it began to fill in July and August. This and most other demonstration ponds are in view of the Field Headquarters site and, therefore, simplifies census taking. Duck production is estimated at seven Wood Duck broods. No broods of any other species were seen. Two pair of Mallards were observed until the third week of May.

The first geese on the refuge were 35 Canadas which were spotted on the 27th day of December. They apparently left that day.

2. Other Waterbirds

Thirty Sand Hill Cranes stopped in the Spring, another 65 passed over in the Fall migration. At least one pair of Green Heron successfully nested on the area. A few Great Blue Heron used the area. No heronry was found.

3. Shorebirds, Gulls and Terns

Several Pectoral Sandpipers and a few Lesser Yellowlegs used the limited Shorebird Area. Killdeers are common. Only one Woodcock was seen. One Herring Gull used the area.

4. Mourning Doves

Nesting success was delayed because of a very wet Spring. No census was taken. One flock of about 300 was noticed the last week of December.

B. Upland Game Birds

Bob White Quail is the only upland game bird on the refuge. About a dozen coveys are estimated from casual observation. One nest with 13 eggs was destroyed by an unknown predator.

C. Big Game Animals

The White Tail Deer is the only big game animal on the refuge. The constant harassment by dogs and poachers outside the refuge seems to be increasing the refuge herd; also, timber thinning being done on future refuge property is improving habitat potential. An estimate from present limited data would be around 20 deer.

D. Fur Animals, Predators, Rodents and Other Mammals

1. Fur Animals

Muskrat: This rodent is not numerous or important now.

Beaver: None are present on the refuge.

Mink: No mink or tracks have been seen, but are thought to be present.

Weasel: One weasel made a bold daytime appearance.

Skunks: No skunks were seen, but their presence was obvious.

Raccoon: Raccoons are abundant and will be a major problem in our duck production efforts.

Oppossum: Oppossum are common. There was a very successful persimmon crop which should aid them in keeping healthy through the winter.

Predators: Wild predators are numerous, but feral cats and dogs are the only need for concern.

E. Hawks, Eagles, Owls and Crows

1. Hawks: Several species of hawks are common.

2. Eagles: No confirmed reports.

3. Owls: Great Horned Owls and Barred Owls are often heard. A few have been seen.

4. Crows: Crows seem to be in normal numbers. There is no roost on or near the refuge.

F. Reptiles

Snapping turtles reduced our display pond ducklings and goslings. One 17 pound snapper was caught and examined. It was full of duck feathers and bones.

G. Disease

No evidence of disease was found.

III. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Banding Operation

1. Ducks. A duck banding project was not attempted due to man power limitations.
2. Doves. Man power was not sufficient for a large scale project. Ninety-eight doves were banded.

IV. PUBLIC RELATIONS

A. Refuge Visitors

A list of official visitors for the year is shown below.

<u>DATE</u>	<u>NAME</u>	<u>AFFILIATION</u>	<u>PURPOSE</u>
1-2	Charles Kniffin	Agent-in-Charge	Bird Banding
	John Favinger	Ind. Dept. Natural Resources	Visit
	Gary Doxtater	Acquatic Biologist	Visit
1-3	Wayne Stapf	Isaac Walton League	Refuge tour
	Pat Clemments	Isaac Walton League	Refuge tour
	James Olmstead	Ind. Conservation officer	Visit
	Lyman Gobin	Ind. Conservation Officer	Visit
1-9	Richard Dickerson	Soil Conservation Service	Soil Conservation
	Frank Lockhard	Ind. Fishery Biologist	Visit
1-10	Victor Walters	Ind. Dept. Natural Resources	Refuge tour
	Howard Woon	Div. of J.C.C.C.	Visit
	Mr. Morgan	Jackson County R.E.M.C.	Electricity on refuge
1-15	Dave Turner	Ind. Dept. Natural Resources	Visit
	Bob Robertson	Ind. Dept. Natural Resources	Visit
	Darryl Christensen	Ind. Dept. Natural Resources	Visit
1-16	Warren Holzheid	Division of Realty	Acquisition
	Jack Wolf	Division of Realty	Acquisition
1-17	Henry Pottschmidt	Contractor)	Sewage treatment
	Mr. Duval	Attorney)	plant public hearing.
1-23	Eugene Young	Corps of Engineers	Sewage problem
	William Prentice	Local Realtor	Visit
2-5	George Hanson	Central States Fisheries	Pollution
	James Harrison	Central States Fisheries	Pollution
2-8	J. L. Roach	A.T. & T.	Cable thru refuge
2-9	James McCoy	Seymour Chamber of Commerce	Information visit
2-18	Dwight Gallimore	Ind. Conservation Council, Inc.	News editor
	George Weymouth		Refuge tour
	Ron Diehl		Refuge tour

3-8	J. F. Wetzel	Ind. Conservation Officer	Visit
	H. E. McReynolds	U. S. Forest Service	Tour of refuge
	Tom Sechrist	Game Management Agent	Tour of refuge
3-15	George Warner	N.Vernon Chamber of Commerce	Tour of refuge
3-19	Joe Caradona)	Jennings County Park	Tour of refuge
	Bob Moore)	and Recreation Board	Tour of refuge
4-9	Lowell Hoffman	Division of Refuges	Training clerk
4-11	James McCall	Soil Conservation Service	Refuge tour
	John Holwager	Soil Conservation Service	Refuge tour
4-22	Arthur Redinger	County Youth Agent	4-H tour
5-23	Russel Hyar	State Waterfowl Biologist	Visit
	Terry McNellis	State Waterfowl Biologist	Visit
6-3	Bill Aultfather	BSFW Forrester	Green Tree Reservoir
6-5	Dale Walbieser	State Biologist	Refuge tour
	Joe Lamendola	State Biologist	Refuge tour
	Mike Earlywine	State Biologist	Refuge tour
6-6	Homer Brenneman	Ind. Conservation Council, Inc.	Visit
6-14	Jerry Sintz	State Game Biologist	Visit
	Gerald Wise	State Deer-Grouse Biologist	Visit
7-3	Bill Goulish	State Fish Biologist	Ponds
8-3	Congressman Frank Karsten	M.B.C.C.	Tour and visit
8-10	Victor Green	State Senator	Tour and visit
8-23	George Bekeris	Realty, Washington, D.C.	Reappraisal
	Clyde Schnack	Realty, Minneapolis	Reappraisal
8-30	Del Robinson	Fisheries Service	Fisheries Mgmt.
	Ron Carlson	Fisheries Service	Fisheries Mgmt.
	George Hanson	Fisheries Service	Fisheries Mgmt.
8-2	Dwight Gallimore	Hoosier Conservation	Editor
8-15	Dr. Ralph Kirkpatrick	Ball State University	Wildlife Study
9-11	Herb Krauch	Purdue University	Refuge tour
9-23	Robert Jorgenson	Realty, Minneapolis	Realty Supervisor
9-26	Jim Hughes	Land Negotiator, Indiana	Tour and visit
10-23	John Jones	BSFW Safety Director	Inspection
	Lyle Miller	Regional Safety Officer	Inspection
10-24	Thomas Weddle	Ref. Mgr., Monroe Reservoir	Visit
10-29	F. Ross Vogelgesang	Met. Planning Comm., Indpls.	Refuge tour
	William E. LaMond	Indianapolis attorney	Refuge tour
	John Alpar	Nurseryman, I.D.N.R.	Seed collection
10-31	Elden Clark	BSFW, Patuxant, Md.	Refuge tour
	John Winship	BSFW pilot	Aireal photographs

11-21	Charles Yeager	County Agent	Television Program
12-6	Fred Evenden	The Wildlife Society	Organizational Mtg.
12-12	Jerry Cummings	Area Biologist	Wildlife Inventory

B. Refuge Participation

Refuge Manager Charles Scheffe participated in the following activities:

1-9 Jackson County Parks and Recreation Board
1-16 North Vernon Rotary Club
1-19 Attended public hearing on Pigeon River Watershed at the request
of I.C.C.I. and River Basin Studies in Lebanon, Ohio.
1-20 Was discussion leader on organization at meeting on natural areas -
Martinsville, Ind.
1-20 Dudleytown Conservation Club
1-25 Westport Kiwanis Club

2-13 Jackson County Parks and Recreation Board
2-20 Annual State Biologist's program - Clifty Falls State Park
2-20 Dudleytown Conservation Club
2-21 Jennings County Commissioners

3-13 12th District Conservation meeting - Austin, Ind.
3-14 Jackson County Parks and Recreation Board
3-14 Jackson County Soil and Water Conservation District
3-19 Dudleytown Conservation Club
3-20 Jackson County Fish and Game Club
3-26 Seymour Chamber of Commerce
3-26 Jackson County Planning Commission

4-5 Boy Scout group
4-16 Refuse Disposal Meeting
4-17 Coffee Creek Conservation Club
4-17 District Directors and Sponsors of the Upper and Lower Vernon Forks
566 Watersheds
4-23 Recreation complex meeting at Seymour Chamber of Commerce
4-30 County Planning Commission
4-30 Parks and Recreation Board

5-10 County Planning Commission
5-16 Planning and Zoning Commission
5-21 Planning and Zoning Commission
5-28 County Planning Commission
5-29 U.S. Soil Conservation meeting re: watershed impoundments

6-3 County Planning and Zoning Board
6-17 Dudleytown Conservation Club
6-25 13th District I.C.C.I. at Versailles, Ind.
6-27 Boy Scout group

7-17 12th District I.C.C.I.

9-17 Dudleytown Conservation Club
9-8 District Directors of I.C.C.I. - Indianapolis
9-11 12 District I.C.C.I.

10-11 Second Annual State Meeting for Bureau Employees
10-22 Jackson County Parks and Recreation Board

11-21 Tri County Conservation Club

12-6 Indiana Chapter of The Wildlife Society

V. OTHER

A. Items of Interest

Among the honors bestowed on Refuge Personnel during 1968 were the following:

1. The Refuge Manager was elected as the first President of the newly formed Indiana Chapter of The Wildlife Society.
2. Mr. Edward Wagner was given an award by the Boy Scouts of America for his leadership abilities with that organization.

B. Photographs

Photos appended

U.S. Post Office Building and office of the Muscatatuck
National Wildlife Refuge, Seymour, Indiana. (RO 10-68)

Permanent Refuge Staff
(Photo by North Vernon SUN staff photographer)



SOIL GROUP MEETS—Ed Wagner, left, talks to his boss, Charles Scheffe, at the soil and water district meeting last Monday. Scheffe heads up the Muscatatuck Wildlife Refuge.—A Staff Photo.

Realty photograph in 1964 showing "Before" view of the
Wildlife display pond. (RO 13-68)

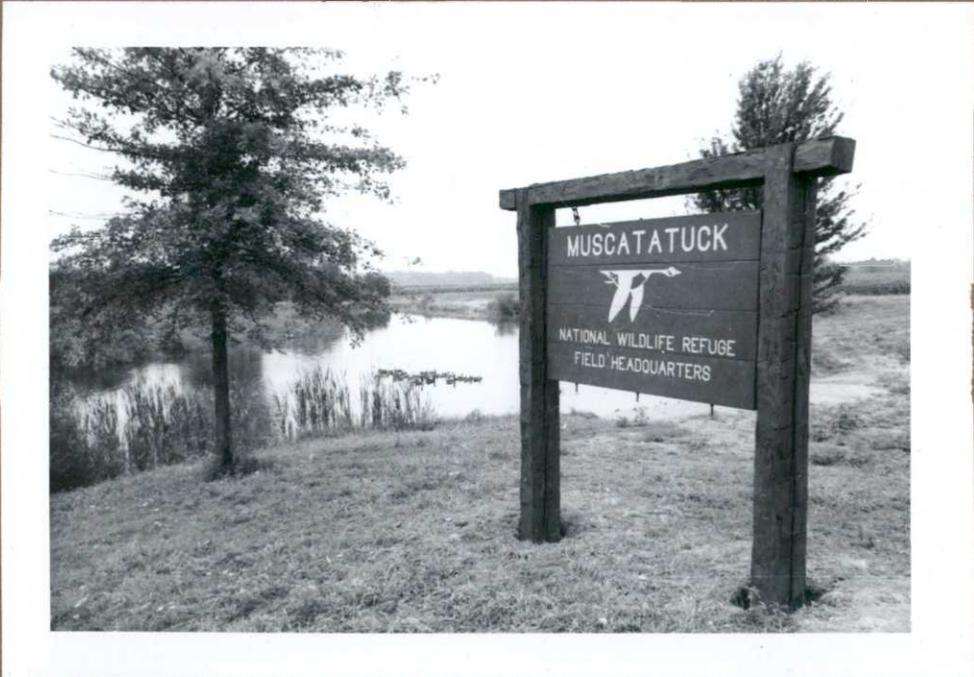
Wildlife display pond at Field Headquarters site.
(RO 14-68)

• MAY • 64



Refuge Manager and State Conservation Officer confer on
local game regulations. (RO 11-68)

Wildlife display pond at Field Headquarters site.
(RO 12-68)



Ed Wagner constructs small pond on refuge.
(RO 15-68)

Shore bird area constructed by Mr. Wagner.
(RO 16-68)



Pumping water into Canada goose display pond.
(RO 17-68)

Geese from Sherburne National Wildlife Refuge
on display pond. (RO 18-68)



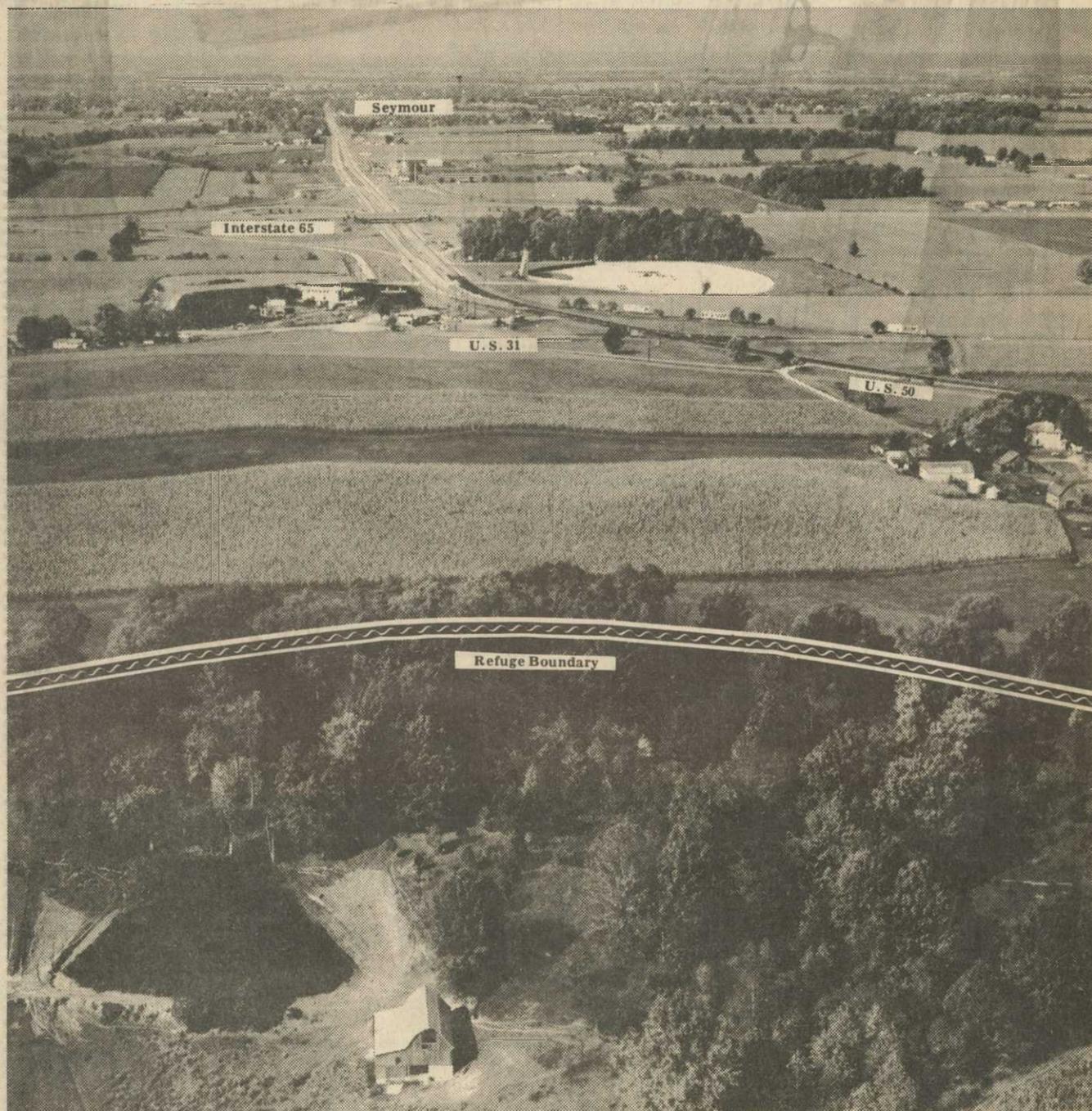
—Tribune Colorphoto By Bob Hinton

Mallard Ducks, Geese Feed On Refuge Here

Some 50 mallard ducks and three Canada geese feed on the Muscatatuck National Wildlife Refuge being developed east of Seymour in Jackson and Jennings counties. In the background is one of six wildlife display ponds already developed in the immediate area around the refuge's field headquarters. Charles E. Scheffe, refuge manager, said land acquisition is progressing at a satisfactory pace with 70 of some 100 tracts needed for full development of the 8,000-acre

refuge already under option or ownership by the government. Approximately 400 acres were acquired this week by Jack Wolf, real estate negotiator of the U. S. Bureau of Sport Fisheries and Wildlife. When completed, the refuge will be a major resting and nesting area for all types of wildlife and also provide seasonable public recreational uses such as fishing, hunting, trapping, photography, picnicking, nature trails and wildlife observation.

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Refuge Boundary Line—This aerial photo shows a portion of the western boundary line of the Muscatatuck National Wildlife Refuge which is being established in Jackson and Jennings Counties east of Seymour. Being established by the U. S. Bureau of Sport Fisheries and Wildlife, Department of Interior, the Government, to date, has acquired or has under option over 2,000 acres of the 7,900 acres needed for establishment of

the refuge. When completed, the refuge will include 2,400 acres of water encompassed with six controlled pools. The refuge, first to be authorized in Indiana, will provide a major nesting and resting area for all types of waterfowl and afford hunting, fishing, nature trails, wildlife photography, wildlife observation, and camping.

Seymour Daily Tribune...Tuesday, June 18, 1968

Refuge Workshop Held By 4-Her's

A 4-H Workshop, for members interested in wildlife, forestry, soil and water, and entomology, was conducted Monday at the Muscatatuck Wildlife Refuge, east of Seymour.

Fifty 4-H members, leaders and parents attended the conservation tour which was opened with Charles Scheffe, refuge manager, explaining the purposes, plans and work being done at the refuge.

Workshop members were then divided up into specific conservation areas, under various instructors.

Instructors for the workshop were, Lyman Goben, Jackson County conservation officer, who led instructions on wildlife projects; Dick Dickerson, Soil Conservation Services work unit conservationist, soil and water; A. N. Liming, extension forester, forestry; and Stewart Hackman and Bruce Yeager, entomology.

A special gun safety and shooting demonstration was also given by the Indiana Conser-

vation Department during the annual workshop event.

June 25, 26, and 27, 4-H members will meet for 4-H Round-Up events at Purdue University.

Delegates of the 4-H Club Round-Up will travel by bus for the annual meeting and will leave Tuesday, June 25, from the Brownstown courthouse at 7 a. m. and the Farmers Club, here about 7:15 a. m.



Do's And Don'ts Of It—Lyman Goben, Jackson County Conservation officer, is shown demonstrating gun safety before a group of 4-H members, attending

a workshop at the Muscatatuck Wildlife Refuge, east of Seymour, Monday. A tour of the wildlife refuge was made after the demonstration.

Scheffe Learns Royal Tern Was Banded In S.C.

A Royal Tern accidentally caught on an artificial lure by Charles E. Scheffe, manager of the Muscatatuck National Wildlife Refuge east of Seymour, while he was fishing for barracuda off the Naval Ordnance Station, Key West, Fla., on March 3 this year was banded in July 1967, near Bull Island S. C.

Friday, Scheffe received a certificate of appreciation from the Migratory Bird Populations Station at Laurel, Md., for reporting the band recovery. After the band information was written down, the gull-like bird was released by Scheffe.

The certificate pointed out the Royal Tern had been banded by personnel of Cape Romain National Wildlife Refuge at McClellanville, S. C., on July 24, 1967, near Bull Island, S. C., while it was still too young to fly.

The certificate further stated, "For the interest and cooperation shown by reporting the band number and data noted above, the Federal, state and provincial conservation agencies and the professional and amateur ornithologists who participate in the North American Bird Banding Program extend their sincere appreciation."

Wildlife Society To Meet

Fred G. Evenden, executive director of The Wildlife Society, will be the guest speaker at a meeting of The Indiana Chapter of The Wildlife Society at 8 p. m. Friday, Dec. 6, at the Holiday Inn at the east edge of Seymour.

Charles E. Scheffe, manager of the Muscatatuck National Wildlife Refuge east of Seymour and president of the newly formed Indiana Chapter of the Wildlife Society, will preside at the meeting.

Scheffe said the meeting is a must for members and those interested in becoming a member of the Indiana Chapter of The Wildlife Society.

Scheffe pointed out that John S. Gottschalk, director of the

Bureau of Sport Fisheries and Wildlife, Department of Interior, also has been invited to attend the meeting here.

Following the Friday night meeting, Scheffe said a tour of the Muscatatuck National Wildlife Refuge is planned for Saturday morning, Dec. 7, for members and guests remaining overnight in the Seymour area.

Scheffe also pointed out that Dr. Charles Kirkpatrick, of Purdue University, has invited the Indiana Chapter of The Wildlife Society to co-sponsor a night meeting on Jan. 8, 1969, at Purdue's Fowler Hall at the Purdue Memorial Center. This meeting will consist of a slide-illustrated talk on "The Life and Behavior of the Bighorn

Sheep" by Dr. Valerius Geist, University of Calgary, Alberta. Dr. Geist is an animal behaviorist and is presently finishing a book on the bighorn.

The Indiana Chapter of The Wildlife Society has been invited to have its February meeting at Ball State University at Muncie. Arrangements are being made with Dr. Ralph D. Kirkpatrick for the meeting the first part of February.

At the present time, the Indiana Chapter has 42 members. William E. Ginn, of Indianapolis, is secretary-treasurer of the organization.

The objectives of the Indiana Chapter are: to advance the science and art of wildlife management; to promote and main-

tain high professional standards; to improve public understanding and support of scientific management of wildlife and related resources; to recognize and commend outstanding work in the profession; to focus the aims and objectives of the parent society on wildlife issues and events on the state scene; in the case of wildlife problems arising in the state, to take action and notify the parent society with recommendations for action if appropriate; and to provide a common meeting ground for wildlife workers.

The main objective of the national organization is to improve the status and technology of people engaged in the field of wildlife management.

SEYMOUR, INDIANA THURSDAY, NOVEMBER 14, 1968

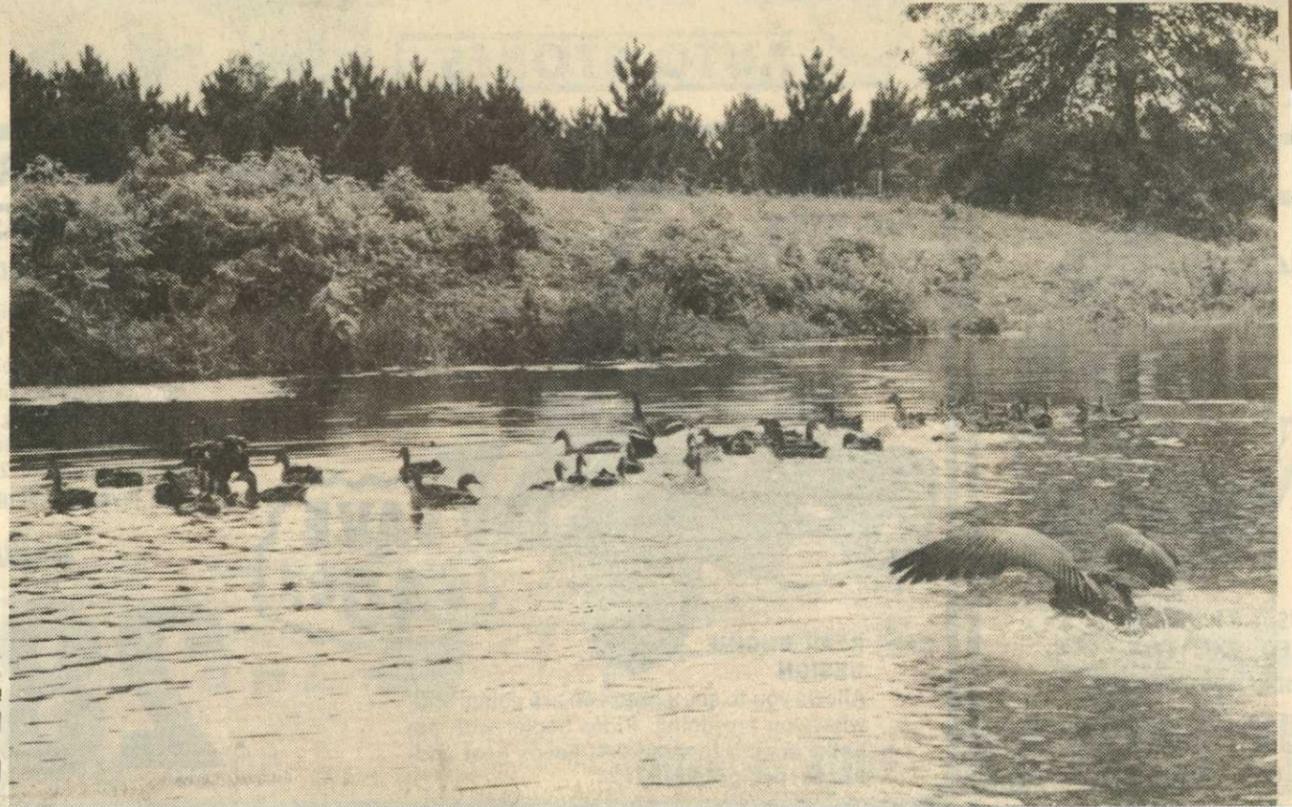
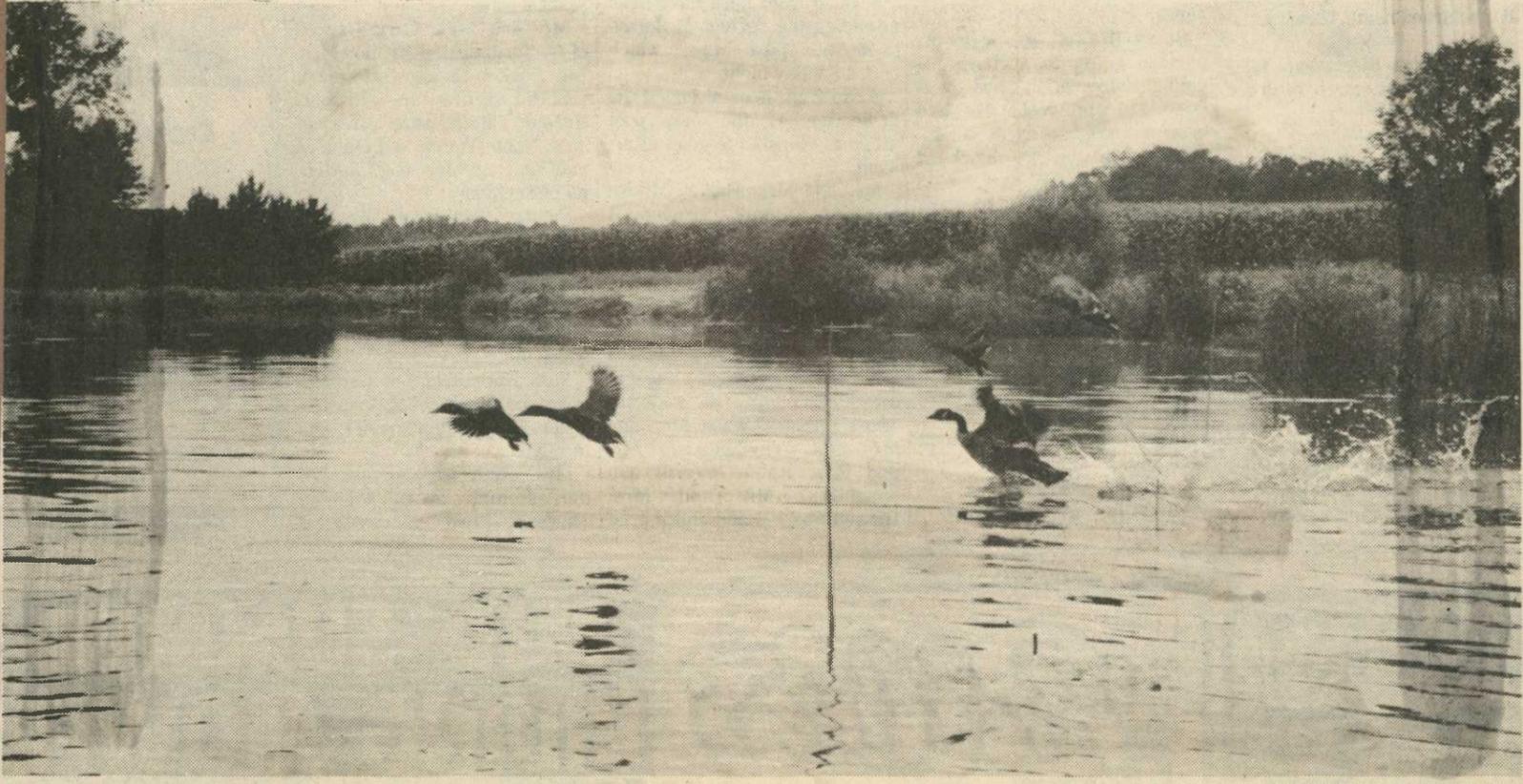
A NEWSPAPER FOR
THE WHOLE FAMILY

SEYMOUR DAILY

TH YEAR—NO. 192

SEYMOUR, INDIANA

WEDNESDAY, AUGUST 14, 1968



22



Scouts Plant Trees

Twenty-one Boy Scouts of Troop No. 2, First Baptist Church, transplanted 1,000 Virginia pine seedlings on the Muscatatuck National Wildlife Refuge east of Seymour Friday under the supervision of Waldo "Ace" Judkins, Scoutmaster, and Ed Wagner, of the Muscatatuck refuge staff. Above, the Scouts and a number of their advisors are pictured with shovels in front of the refuge field office. At left, a group of the Scouts are shown transplanting a pine seedling on the refuge. The 7,900-acre wildlife refuge is presently being developed by the U. S. Bureau of Sport Fisheries and Wildlife, Department of Interior, and will be Indiana's first.



SIGNATURE PAGE

Submitted by:

Charles E. Schiffe
(Signature)
Refuge Manager
(Title)

Date: 3/10/69

Approved, Regional Office:

Date: MAR 10 1969

Phillip S. Morgan
(Signature) ASST.

Regional Refuge Supervisor



Refuge truck rigged for hauling geese.
(RO 19-68)

Wood duck display pond constructed in 1968.
(RO 20-68)



Typical flood scene on Mutton Creek south side of
U.S. Highway 50 bridge. (RC 21-68)

Wild Canada geese on display pond.
(RC 22-68)



Executive Director of The Wildlife Society presents Indiana
Charter to Refuge Manager, Charles Scheffe.
(Seymour TRIBUNE staff photo)



NARRATIVE REPORT
MUSCATATUCK NATIONAL WILDLIFE REFUGE
1968



DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE
MUSCATATUCK NATIONAL WILDLIFE REFUGE
SEYMOUR, INDIANA

3-1750
 Form 1
 (Rev. March 1953)

WATERFOWL

REFUGE Muscatatuck

MONTHS OF Sept. 1 TO Dec. 31, 19 68

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard										
Black										
Gadwall										
Baldpate						1	1	1		
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood	75	75	75	75	75	75	100	125	125	
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<u>Coot:</u>					2	2	2	2		

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans				Principal feeding areas Wood duck pond
Geese	35	35		
Ducks	14,370	313		Principal nesting areas
Coots	56			

Reported by E. Wagner
Ed Wagner

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751
Form NR-1.
(Nov. 1945)

MIGRATING BIRDS
(other than waterfowl)

Refuge.....Muscatatuck..... Months of Sept. 1 to Dec. 31 1956

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	
I. <u>Water and Marsh Birds:</u>										
Killdeer	7	9-9-68	NO CENSUS		4	12/31/68				Not enough data
II. <u>Shorebirds, Gulls and Terns:</u>										
Herring Gull	1	12-14-68	1	12-14-68	1	12-14-68				1

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove	9-1-68	NO CENSUS	12-31-68		Not enough data
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow	NO CENSUS				Not enough data

Reported by *E. Wagner*
Ed Wagner

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Muscatatuck Months of 9-1-68 to 12-31-68, 1968

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres Per Bird	Number broods observed	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat				Percentage					Pertinent information not specifically requested. List introductions here.
NOT	ENOUGH DATA				NOT	ENOUGH DATA				

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge Muscatatuck Months of 9-1-68 to 12-31-68, 1968

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres Per Bird	Number broods observed	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat				Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
	NOT ENOUGH DATA				NOT ENOUGH DATA					

3-1
Form NR-3
(June 1945)

BI GAME

Refuge Muscatatuck Calendar Year 1968

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		Number	Source	
White tail Deer	NOT ENOUGH DATA											NO CENSUS	

Remarks:

Reported by Ed Wagner
Ed Wagner

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Virginia Pine							Field Hdqtrs. site	Irregular	5 acres	1,000 Va. pine	3/1/68	80%	drought

- (1) Report agronomic farm crops on Form NR-8
- (2) C = Collections and R = Receipts
- (3) Use "S" to denote surplus

Remarks: Above 1,000 trees were furnished by the State Nursery at no cost to the Government. Planting was done by a group of Boy Scouts from the Seymour area.

Total acreage planted:

Marsh and aquatic _____
 Hedgerows, cover patches _____
 Food strips, food patches _____
 Forest plantings 1,000 Virginia Pine

3-1758
 Form NR-8
 (Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Muscataatuck County Jackson State Indiana

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn	50	2500/bu.			10	500	60		
Corn	30	938/bu.	10	313 bu			40		
Soybeans	30	750/bu.	10	250 bu			40		
Soybeans	15	450/bu.	5	150 bu			20		
Soybeans	27	575/bu.	3	75 bu			30		
Soybeans	30	600/bu.	10	200			40		
								Fallow Ag. Land	500 A.

No. of Permittees: Agricultural Operations 6 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None				1. Cattle	None			
				2. Other	None			
Hay - Wild				1. Total Refuge Acreage Under Cultivation			From a cooperation agreement	230
				2. Acreage Cultivated as Service Operation				None

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1750
 Form 1
 (Rev. March 1953)

WATERFOWL

REFUGE Muscatatuck

MONTHS OF May 1 TO Aug. 30, 19 68

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard	4	4	4							
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal	8	8	8							
Cinnamon teal										
Shoveler										
Wood	8	12	10	10	12	15	20	20	30	25
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<u>Coot:</u>										

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas <u>not known</u>
Geese				
Ducks	2,726	35	42	Principal nesting areas <u>not known</u>
Coots				
				Reported by <u>E. Wagner</u> Edward F. Wagner

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1

(Nov. 1945)

MIGRATING BIRDS
(other than waterfowl)

Refuge.....Muscatatuck..... Months of.....May 1.....to.....Aug. 30.....19568

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Green Heron	2	5-1				8-30		1	2	No Census
Kill deer	12	5-1	30	7-15	20	8-30				
Great Blue Heron	1	5-10	4	8-20		8-20				
II. Shorebirds, Gulls and Terns:										
No Census										

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons: Mourning dove White-winged dove	No Census				
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow	No Census				

Reported by

E. Wagner
Edward Wagner

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 FISH AND WILDLIFE SERVICE
 BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Muscatatuck For 12-month period ending August 31, 1968

Reported by _____ Title _____

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
	Crops	_____	Ducks	_____	_____
	Upland	_____	Geese	_____	_____
	Marsh	_____	Swans	_____	_____
	Water	_____	Coots	_____	_____
	Total	_____	Total	_____	_____

	Crops	_____	Ducks	_____	_____
	Upland	_____	Geese	_____	_____
	Marsh	_____	Swans	_____	_____
	Water	_____	Coots	_____	_____
	Total	_____	Total	_____	_____

	Crops	_____	Ducks	_____	_____
	Upland	_____	Geese	_____	_____
	Marsh	_____	Swans	_____	_____
	Water	_____	Coots	_____	_____
	Total	_____	Total	_____	_____

	Crops	_____	Ducks	_____	_____
	Upland	_____	Geese	_____	_____
	Marsh	_____	Swans	_____	_____
	Water	_____	Coots	_____	_____
	Total	_____	Total	_____	_____

	Crops	_____	Ducks	_____	_____
	Upland	_____	Geese	_____	_____
	Marsh	_____	Swans	_____	_____
	Water	_____	Coots	_____	_____
	Total	_____	Total	_____	_____

	Crops	_____	Ducks	_____	_____
	Upland	_____	Geese	_____	_____
	Marsh	_____	Swans	_____	_____
	Water	_____	Coots	_____	_____
	Total	_____	Total	_____	_____

NOT DEVELOPED ENOUGH
 FOR ANY DATA

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should be equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.

(4) Breeding
Population: An estimate of the total breeding population of each category of birds for each area or unit.

(5) Production: Estimated total number of young raised to flight age.

3-1752
 Form NR-2
 (April 1946)

UPLAND GAME BIRDS

Refuge Muscatatuck

Months of May 1 to August 30, 1968

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
NOT ENOUGH DATA					NOT ENOUGH DATA					

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

3-1750
 Form 1
 (Rev. March 1953)

WATERFOWL

REFUGE Muscatatuck

MONTHS OF Jan 1 TO April 30, 1968

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
<u>Ducks:</u>										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
<u>Coot:</u>										

NONE OBSERVED DURING THIS PERIOD

3-1750a

Con IR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE MUSCATATUCKMONTHS OF Jan. 1 TO April 30, 1968

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	11	12	13	14	15	16	17	18			
<u>Swans:</u>											
Whistling											
Trumpeter											
<u>Geese:</u>											
Canada											
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
<u>Ducks:</u>											
Mallard	2							4	16		
Black											
Gadwall											
Baldpate											
Pintail											
Green-winged teal											
Blue-winged teal	2			3	3	3	2	4	580		
Cinnamon teal											
Shoveler		2							6		
Wood	9	6	6	10				15	3,260		
Redhead											
Ring-necked	45								375		
Canvasback											
Scaup	12								69		
Goldeneye											
Bufflehead											
Ruddy											
Other <u>Pied B. Grebe</u>	1								93		
<u>Coots:</u>											
	1								17		

(over)

	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans				Principal feeding areas
Geese		1		
Ducks	4,309	63		Principal nesting areas
Coots	17	1		

Reported by

E. Wagner
Edward Wagner

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751
Form NR-1
(Nov. 1945)

MIGRATING BIRDS
(other than waterfowl)

Refuge.....Muscatatuck..... Months of Jan. 1..... to April 30..... 1968..

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Sandhill Cranes	30	3-15-68	30	3-15-68	30	3-25-68				30
Pectoral Sandpipers	135	4-10-68			135	4-10-68				325
Lesser Yellow Legs	1	4-10-68	5	4-19-68	5	4-19-68				18
II. <u>Shorebirds, Gulls and Terns:</u>										
Wood Cock	1	3-20-68	1	3-20-68						Not Enough Data

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove					
IV. <u>Predaceous Birds:</u> Golden eagle Duck hawk Horned owl Magpie Raven Crow					
				Reported by <i>E. Wagner</i>	

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.